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Report on Wilmington
and Raleigh railroad



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EXTRACTS
FROM THE
REPORT OF
WALTER GWYNN, ESQ.,

*To the President and Directors of the Wilmington and Raleigh
Rail Road Company:*

GENTLEMEN:--

I have the honor to submit to you the results of the reconnoissances and surveys, necessary for a selection of the route of the contemplated Rail Road between Wilmington and Halifax.

A careful examination of the country led to the adoption of the following lines for survey:

WESTERN ROUTE.

This route commences at the "Dry Pond," in the South East suburbs of Wilmington, thence running nearly due North to the head of Market street, it takes an Easternly direction to a favorable site for crossing Smith's Creek at "Love Grove." After crossing Smith's creek, the route passes over a level plain; only broken by Prince George's creek, which it crosses between Mr. Burgwin's dwelling and mill-house, to the North-East branch of the Cape Fear, river, near the old bridge. The graduation on this portion of the route, consists of slight excavations and embankments in clean sand, and will be extremely easy of execution. From the Cape Fear, it may be run straight, forty-seven miles to, Hackleberry pocosin; at the head of Bear swamp. Within this distance, the route will cross Rockfish and Stewart creeks. With the exception of the bridges and embankments across the streams, the surface of the ground is so very level, that the chief work in the road-way formation, will consist of slight cuts no where greater than ten feet in depth, and embankments from two to three feet in height. The route traverses the ridge dividing the waters of Long Creek from those of the North-East," and passes about two miles and a half to the West of South Washington; and about seven miles to the West of Kenansville. From the head of Bear swamp, the country continues unbroken, until the route reaches Goshen; which is one of the head branches of the North-East. Here, the first undulation in the plane of the road worthy of notice, occurs a descent, and immediately an ascent of 30 feet to the

mile is unavoidable, and some comparatively deep cutting, and heavy embankments are encountered. Immediately on ascending from the valley of Goshen, the route reaches a dry, level, open woods, through which it passes to Brook's branch. The formation of the Rail Road on this portion of the route will consist, chiefly, in cutting down the large trees which overspread the track, and hewing and preparing them for the reception of the iron rails. After making a slight undulation in crossing Brooks' branch, which is a very inconsiderable stream, it arrives at the same level, on which it continues to the head of Yellow Marsh; along the margin of which, it descends to the valley of the Neuse River,—encountering in its descent, some heaving cuttings which consist, however, entirely of sand. It crosses the Neuse at a very favorable place just below the bridge on the stage road from Halifax to Fayetteville; thence passing near Waynesborough, the country wearing the same level aspect, with the exception of the breaks occasioned by the Nauhunta, Acock, and Black creeks, the surface being almost perfectly smooth. It reaches Contentnea Creek about half way between Woodward's and Rountree's bridges. After crossing the Contentnea, until the route reaches Enfield, the country may be characterized as bold, compared with the uniform level aspect heretofore presented.

The soil also undergoes some change. From sand, to a substratum of clay, mixed with sand, which will be encountered in some of the excavations. On this portion of the route, Tossnot, Town, and Cokey Swamp, the Tar river, and Swift and Fishing creeks, are crossed. These occasion a multiplicity of low summits, and an undulatory profile. The grades are, however, gentle, and the cuttings and fillings nowhere exceed fifteen feet. After leaving Enfield, the route gradually descends to a favorable site for crossing Beach swamp, just below the mouth of Bear swamp; along the border of which, with very little variation from a level grade, and no other expense in the formation of the road-way, than the raising of a bank two or three feet in height, the route runs until it reaches Quankey creek. Here occurs the highest embankment on the line of the road. It is, however, very short. From Quankey, which is only a mile from the termination of the road, the route ascends very gradually until it unites with the Halifax and Weldon Rail Road, about half a mile from Halifax, and seven miles from Weldon. At Weldon, the Portsmouth and Roanoke Rail Road crosses the Roanoke river by a bridge—it also crosses the Petersburg Rail Road about two and a half miles from Weldon, where the two roads can be easily united; and thus a connexion of your road may be formed with the Petersburg Rail Road, or by the Steam Boats which now daily ply between Weldon and Blakely. They may be connected. In any event, I can see no difficulty in the way of both passengers and goods, destined for Petersburg.

passing from your road to the Petersburg Rail Road, with as little delay and inconvenience, as to the Portsmouth Rail Road.

A description of the line which was run on the West side of Long creek to Bear Swamp, and which will be brought into comparison with that portion of the Western route from Wilmington to the same point, will appropriately precede the estimates to the "Western route," and will come in here. This line commences at the Timber pens, & runs upwards along the margin of the river about a mile; thence it crosses over and passes along the dividing ground between the Cape Fear and its North-East branch, to nearly the head of Long Creek. The road-bed in this distance will be formed of alternate excavations and embankments, consisting entirely of sand. Thence the line will pass on the dividing ground between Long Creek and Moore's Creek; and between Moore's and Rockfish Creeks; and throughout to the head of Bear Swamp, the ground is extremely favourable. Stewart and Turkey Creek are the only streams that are crossed.

Summary of the Excavation, Embankments and Superstructure:
69 miles, 1191 feet, at \$433,815 97

From this, there should be deducted the cost of six miles of superstructure, at \$3,800 per mile, this being the reduction which will occur in the actual location; which leaves \$411,015 97, the cost of this line. This, compared with the first three items in the following estimate of the Western route, and the result in favour of the route on the East side of Long creek to Bear Swamp, will be in the first cost, \$49,593 09; and in distance upon the probable line of location, 4950 feet. A comparison of the grades and curvatures, results in favor of the line on the East side of Long Creek. I have, therefore, based my estimates for the Western route on this line, supposing that the same reasons which have influenced me in the selection, may also operate with the Board in according it the preference. I have now to proceed with the estimates of the

WESTERN ROUTE.

Summary of the cost of Excavations, Embankments, Superstructure, Locomotive Engines, Coaches, Cars, Water-Stations, Wharves, Shops, Contingencies, and Steamboats:

161 miles, 3189 feet of Rail Road; and 150 miles of Steam Boat Communication, \$1,500,000.

Careful and minute enquiries, with the view of ascertaining the practicability of a route through Rockymount, and also through Kenansville, by Rockford, resulted in the conviction of their being less eligible than either of the routes selected. It now remains to describe the character of the

EASTERN ROUTE.

This route pursues the trace of the Western route to station No.

176; thence it takes a more easterly direction, and traverses the ridge dividing the waters of the North-east branch of Cape Fear River from those of the New and Neuse Rivers, until it reaches the Neuse at Rockford. On this portion of the route, we cross Smith's and Prince George's creeks, and several small streams, which make into the North East. The general aspect of the country is extremely level and favourable to the contemplated work. From Rockford to Edwards' bridge, where the route crosses the Contentnea, there are no difficulties or streams to cross worthy of notice. From Contentnea the route ascends gradually to a level, which is maintained for several miles; when it descends to effect a favourable crossing of Town creek; thence several undulations are necessary in crossing small streams, until the route reaches Tarboro'. Thence a level grade may be had entirely across Tar river. A favourable site for crossing which, is found about a mile a halt North of Tarborough. Thence the route alternately ascends and descends to lessen the excavations and embankments in passing Deep creek, Connecanary creek, and the ridges between them, until it enters the Western route five miles from Halifax, which it pursues to the Halifax and Weldon Rail-road.

Summary of the costs of Excavations, Embankments, Superstructure, Locomotive Engines, Coaches, Cars, Water-Stations, Wharves, Shops, Contingencies, and Steamboats.

162 miles—1504 feet of Rail Road; and 150 miles Steamboat communication, \$1,512, 853 80—making the whole line of communication, by Rail Road and Steamboats, 312 miles.

This shows a difference in cost, in favour of the Western route, of \$12,853 80. A comparison of the grades, length of curvatures, and straight lines, exhibits also a slight difference in favour of that route. On the Eastern route, however, there will occur a thousand feet less bridging. This, in the annual repairs of the road, will operate in its favour, by lessening the amount some four thousand dollars per annum. The superiority of the one line over the other, in a professional point of view, is so very slight, that an expression of my preference under this head, could not be a decision of the question of choice between them. The Board may, then, consider that I lay the routes before them as equal, under all the aspects in which, under my province, I have been called upon to view them. Their familiarity with the resources and interests of the country bordering on the lines, will enable them to estimate and compare the amount of trade on each; a preponderance of which, may very justly form the basis of a preference. I would beg leave, however, to add, that looking to a connection with the works which are contemplated between the Western parts of the State and the Sea-board, & to the lateral branches which are authorised by the charter, the Western route is decidedly to be preferred. But

whether the Eastern or the Western route be selected, I can confidently assure the Board, that no portion of the United States, certainly for the great extent of country embraced, offers so many facilities for the construction of a Rail-road. Timber of the best quality is found on every part of the line; the soil consisting either wholly of sand, or a proper admixture of sand & clay, affords as good a foundation as can be expected from earth alone. Granite occurs on the Tar river, and on Fishing & Quanky creeks; and will be used in forming the abutments of the bridges across those streams; and for the construction of drains within convenient hauling distance. Where rock is not convenient, wooden structures will be used in the passage of the Water courses and ravines; to be substituted hereafter by stone or brick, which can be delivered much more economically after the completion of the road. The entire elevation of the road above tide water, is 189 feet. This is overcome by grades rarely so great as 30 feet to the mile. The whole length of curvatures on the road, does not exceed thirteen miles; and in every instance, the departure from a straight line is effected on curves described with a radius exceeding a mile.— So slight indeed are the grades and curvatures, compared with many other roads in the country, that yours may be considered as straight and level; certainly as presenting every facility for the most extensive and economical application of swift locomotive power, to which Rail-roads owe their undeniable superiority wherever, as will be the case here, gravity has but a small share in the resistance.

The estimate of the road-way formation falls far beneath the average cost of similar works; while it is believed that the profits will not be excelled by any improvement in the country. For your Rail-road, in connexion with the Portsmouth and Roanoke, and the Petersburg Rail-road at Weldon; both of which are links in continuous lines of Rail way and Steam-boat communication to Boston, must become the great thorough-fare between the North and South; for between the Roanoke river and Charleston, or the Charleston & Hamburg Rail-road, admitting there were any other communication by Rail way contemplated, its greater length, and what is a matter of deeper consideration, its greater expense, forbids the idea of rivalry; and places your road almost beyond the reach of competition. So that we may say, in fact, it forms an important, if not indeed, the most important link in the great line of intercommunication between the North and the South.— Under this view of the subject, it is difficult without the appearance of exaggeration, to estimate the probable revenue.

The travel between Charleston and the Northern cities by steam-boats and stages, may be safely computed at sixty thousand. This amount might be greatly swelled by embracing the whole travel from New Orleans; which we confidently believe will take the route of your Rail-road.

But we will say 60,000 travellers at \$12 50 each, \$750,000 00
 To this we may add for the transportation of the mail, 50,000 00
 Way passengers and freight on produce and goods, 100,000 00

\$900,000 00

Deduct for the repairs and renewal of the road and Steam-Boats,	<u>\$200,000 00</u>
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And it leaves a nett revenue of	<u>\$700,000 00</u>
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Now, although I believethis sum will fall short of the receipts for the first year, yet, lest we should appear too sanguine, and to remove all possible objection, we will deduct from the foregoing, twenty-five per cent.; which reduces the amount to \$525,000 00, or a dividend of 35 per cent on the estimated cost of the work. A Rail-road which produces 6 per cent nett in the first years of its operation, is considered good property; for the increase of business which must ensue, always increases the annual profits in a great ratio. While our estimates exceed this per centage nearly six times, it will be perceived that we have confined ourselves entirely to the amount of the present travel; and this, after being taken at a very low estimate, reduced twenty-five per cent. But in presenting a view of the prospects of the Road, we should anticipate the probable increase of travelling, by reason of the increase of the business and population of Charleston; which must ensue from the great and gigantic scheme which she has in contemplation, and which she will no doubt carry into effect to Cincinnati. And in a few years the Rail-road to Hamburg, which is now being extended to Athens, will be prolonged southwardly to Columbus; and thence in continuation with the Rail-road to Pensacola, complete the line of Rail way and steam-boats, all the way to New-Orleans. But without any further specification of the various improvements which are in contemplation and begun at the South, suffice it to say, that your Southern termination at Charleston, towards which all these improvements converge, ensures you immediate, continually increasing, and never failing sources of revenue; and completely sets all competition, by other and similar improvements, at defiance. For all past experience has shewn, that the travel on routes connecting *commercial* cities, increases in a ratio, much beyond that of the business or population; and the great lines of travel in all countries, lead through the commercial Towns.

Routes passing through the interior, with a view to divert the travel, must be regarded as experiments running counter to all experience, and of very doubtful success. And I lay it down as an incontrovertible fact, that those works which will prove most profitable, and most conducive to the great and varied interests of the country, may be classified under two heads. Those which connect the commercial cities, and those which lead from the commercial

towns by the most direct routes to the interior and western portions of our country.

But your revenue will be greatly swelled from other sources, which we have not taken into the account. All the improvements which are contemplated from the sea-board to the Western part of your State, must cross the line of your Rail-way ; and to whatever point destined, will find it to their interest, to some extent, to pursue it, in order to make selection of the most favorable location. Under this aspect, your Rail-road presents itself to the State in a peculiarly interesting point of view. It traverses it nearly thro' its entire length from North to South, and forms the basis upon which the Internal Improvement scheme of the Raleigh Convention may be most economically carried out. For, as I have before intimated, the cheapest route from any point on the sea-board to the West, from Beaufort, for instance, to the narrows of the Yadkin, will be found on a very direct line *West*, until it falls into your Rail Roads ; and thence (in this case) along it to some point South of the Neuse river.

In a military point of view, your Rail Road, in connexion with the Portsmouth and Roanoke Rail Road, and the contemplated Rail Road between Wilmington & Charleston, may be regarded as forming a complete line of defence to the whole sea-board from Norfolk to Charleston ; for there is no Rail Road in the country, upon which so large a force can be concentrated in a given time ; and where, perhaps, there would be a greater probability of its being required. By the Charleston and Hamburg Rail Road and its connexions ; the Charleston and Cincinnati Rail Road ; the Roanoke, Danville, and Junction Rail Road ; the Portsmouth and Petersburg Rail Roads ; and by means of the Rail-ways to the West within your own State, levies for troops on South Carolina, Georgia, Alabama, Louisiana, Mississippi, Tennessee, Kentucky, Illinois, Indiana, Ohio, Virginia, North Carolina, Maryland, &c. may be met from the remote States in a few days, and in a few hours, from the more adjacent States, and any number of troops may be thrown on the line of your Railway whence, by lateral roads and Steam Boats, (down the numerous navigable streams which the road crosses) in a few hours, or by a march of a day or two, they may occupy any position on this extended coast. And in the transportation of stores and munitions of war, which, under the military head, is a matter of primary importance, it affords a safe avenue ; and in time of war, will prove a saving of millions to the Government.*

As a National work, therefore, yours cannot be considered as secondary to any in the country. . But one of the most happy results of the Rail-way system in the Southern country, and which

*Extract from the Report of Mr. Cass, Secretary of War, on National defence.

"The power of transporting troops and munitions of war, has already

will be imparted by your Rail Road, to that portion of the State most concerned, is the effect it will have, by the speedy concentration of troops to put down, if not entirely suppress and remove all apprehensions of servile disturbances and insurrections. The speedy transit of the mail, especially between commercial cities, is an object of solicitude with all Governments. Your improvement fully meets this object; and its importance under this head also, cannot fail to attract the attention of the General Government; and also the concentrated concurrent interests of the large cities at the North. And having the effect, as we have asserted, your road will have, to turn the whole stream of travel between the North and the South through Charleston, & on the Charleston and Hamburg, and the Charleston and Cincinnati Rail Roads, she, as well as those interested in these two great improvements, are deeply interested in your success, and will no doubt contribute largely towards it; and the trade and travel which it will throw on the Portsmouth and Petersburg Railways, will greatly enhance their profits, and advance the prosperity and wealth of Petersburg, Norfolk, and Portsmouth.

The counties along the line have manifested the interest with which they regard it, by the handsome subscriptions which they have made.

The benefits to Wilmington, will be immediately felt in the great increase in the exchange of commodities, which the increased facilities of communicating with a rich back country will afford. And she may be justly proud of the rank to which she will elevate herself, in having projected and carried into effect, an improvement which may be characterised as a great National and State work.

All which is respectfully submitted by,
Gentlemen,

Your obedient servant,
WALTER GWYNN,

Civil Engineer.

Wilmington, Aug. 15, 1836.

opened new views upon this subject; and such is the progress and probable extent of the new system of intercommunication, that the time will soon come, when almost any amount of physical force may be thrown, in a few hours, upon any point threatened by an army. Nashville may succor New Orleans in sixty hours; Cincinnati may aid Charleston in about the same time; Pittsburgh will require but twenty-four hours to relieve Baltimore; and troops from that city, and from Boston, may leave each place in the morning, and meet in New York in the evening. This wonderful capacity for movement, increases in effect, some of the most important elements of national power. It neutralises one of the great advantages of an assaulting force, choosing its point of attack, and possessing the necessary means of reaching it. Detachments liable, under former circumstances, to be cut off in detail, may now be concentrated without delay, and most of the garrisons upon the seaboard may be brought together, and after accomplishing the object of their concentration, be returned to their stations in time to repel any attack meditated against them."

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